

The BroadNet Alliance

July 1, 2002

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Marlene H. Dortch
Secretary
Federal Communications Commission
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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

**Re: CC Docket Nos. 02-33 (Appropriate Framework for Broadband
Access to the Internet Over Wireline Facilities); 98-10; 95-20**

Dear Ms. Dortch:

Pursuant to Sections 1.2 and 1.419 of the Commission's Rules (47 C.F.R. 1.2, 1.419), the BroadNet Alliance ("BroadNet") submits the attached white paper, "The Importance of a Broad Net," as its reply comments in the above-referenced proceeding. The BroadNet Alliance is a coalition of national, regional, and local independent Internet service providers (ISPs) that supports appropriate and effective regulatory oversight of the incumbent local exchange carriers (ILECs) to ensure quality, affordability, and innovation through competition. BroadNet is responding to specific portions of the Commission's Notice of Proposed Rulemaking, 17 F.C.C.R. 3019 (2002), and initial comments filed by several parties, questioning the need to continue retaining the Commission's nondiscriminatory access requirement as established in the Computer Inquiry proceeding.

The attached BroadNet white paper explains how the FCC's ISP-related policies have played, and continue to play, a pivotal role in the rise and success of the online world. The paper describes how the FCC's fundamental regulatory principles were first enunciated in the Computer II order of 1980, where the Commission mandated that the ILECs sell to all ISPs, on an equitable and nondiscriminatory basis, the "last mile" telecommunications connections necessary to reach their customers. The resulting early growth and incredible success of the online world -- both before and after the commercial introduction of the Internet -- is traced, and linked to the competing robust choices in services, applications, and content made available to American consumers.

Just as consumers now are able to connect to and utilize any ISP via the first generation of "narrowband" Internet access and services, ISPs now seek the right to serve customers for the next generation of the Internet via "broadband" connections. The BroadNet paper points out in particular that the same "equal access" rules should apply because dial-up-based (narrowband) Internet access and digital subscriber line (DSL)-based (broadband) Internet access both utilize the same local telephone facilities and

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infrastructure, and allow consumers to reach the same types of content and services from the Internet.

In its conclusion, the paper urges the FCC not to abandon its longstanding pro-competitive, pro-consumer policies at such an obviously critical juncture in the evolution of the Internet and the information economy. Just as important, the FCC must begin to enforce its existing rules to protect consumers and ISPs alike from an extension of the Bell Companies' local telephone monopoly into broadband and the Internet. In BroadNet's view, the prescient right answer in 1980 is still the right answer today – open markets and consumer choice.

Pursuant to the Commission's Rules, an original and four copies of this cover letter and the attached white paper are being provided to you for inclusion in the docket of the above-referenced proceeding.

Sincerely,



Maura J. Colleton
Executive Director
The BroadNet Alliance

cc: Chairman Michael Powell
Commissioner Kathleen Abernathy
Commissioner Michael Copps
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FEDERAL COMMUNICATIONS COMMISSION
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THE IMPORTANCE OF A BROAD NET
***THE SIGNIFICANT ROLE OF ONLINE SERVICE
PROVIDERS IN THE DEVELOPMENT AND SUCCESS OF
THE INFORMATION AGE***

JULY 2002

A BroadNet Alliance White Paper

BroadNet

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“FASHIONING A BROAD NET” -- THE SIGNIFICANT ROLE OF ONLINE SERVICE PROVIDERS IN THE DEVELOPMENT AND SUCCESS OF THE INFORMATION AGE

INTRODUCTION

The commercial Internet, while less than a decade old, already has had a profound impact on the way Americans live, work, and play. At the center of this amazing success story are online service providers – including most recently Internet service providers (ISPs) – who have played a critical role in the development of the electronic world we now call the World Wide Web. These companies, and their progeny, have endeavored to continue providing tens of millions of consumers with the tailored services, applications, and content they desire. Key to their success is the enforcement of a fundamental regulatory principle, first enunciated by the Federal Communications Commission in 1980, mandating that the incumbent local exchange carriers (“ILECs”) make available to ISPs, on a nondiscriminatory basis, the “last mile” telecommunications services necessary to reach their customers. This “equal access” policy in large part enabled the rise and amazing success of the online world, and the astonishing array of choices made available to all consumers throughout the United States.

This BroadNet white paper explores the deep roots of the online services market, beginning with the early enhanced service providers which helped pave the way for the Internet. The paper also examines how the FCC’s nondiscriminatory access policy created the conditions that allowed consumers to reach the online providers of their choice. Addressing the advent of the ISP, the paper describes the rich array of services and content made available through narrowband “dial up” connections to the Internet.

As the broadband era dawns, independent ISPs seek to offer to consumers the ability to connect to, and utilize, the next-generation applications that ride on broadband transmission services. In so doing, these ISPs hope to provide much-needed competition to the retail ISP offerings provided by the ILECs and cable companies. At this critical juncture, BroadNet calls on the FCC not to retreat from its decades-long commitment to maintaining nondiscriminatory access to the telecommunications platforms that lead to the online world.

THE INTERNET: YESTERDAY, AND TODAY

A. In The Beginning: The Online World Before the Internet

The online services market did not simply materialize out of thin air in 1995. In the 1970s, 1980s, and early 1990s, there was no commercial Internet, no World Wide Web, no use of web browsers or search engines or Instant Messaging. However, as far back as the late 1960s, small, innovative companies such as CompuServe and Prodigy were pioneering the use of interactive information content services. These enhanced service providers (ESPs) built a loyal base of customers who communicated via computer connections using FTP, Usenet, and other protocols, and utilized a vast array of applications in the process.

A simplified timeline of the thirty years between the initial rise of online services and the birth of the commercial Internet might prove helpful:

1960s

- International airlines cooperate to build a packet-switching reservations network that uses leased telephone lines to connect nine international switching centers. By 1973 the volume over this network exceeds all international telegraph traffic.

- GE begins a commercial time sharing service that serves 25 US cities and sites in Canada, Mexico, Britain, the Netherlands, and France.
- Advent of ARPANET
- CompuServe begins as a time share service.
- Tymnet begins work on its commercial network to provide time sharing services.

1970s

- Bolt, Beranek, & Newman (BBN) take the lead in developing the ARPANET, the precursor to the Internet.
- FTP released by Jon Postel (1972).
- NASDAQ begins transmitting stock quotations (1971). By 1975 there are 1,700 terminals connected to this network.
- CompuServe reaches 400 business subscribers across the country (1972). Items available online include bulletin boards, databases, and games.
- Email, which already existed on time sharing computers, is added to ARPANet protocols (1973).
- BBN opens Telenet, the first commercial version of the ARPANET (provides time share services) (1974). General Motors was an early customer.
- Tymnet grows to 160 nodes and can serve 1,000 or more users simultaneously (1976).
- Apple II users use A.P.P.L.E.'s "Apple Box" to send and receive programs via the phone line by way of a cassette port.
- First USENET newsgroups established (1979).
- Release of the DC Hayes Micromodem II (1979).
- Telenet is acquired by GTE (1979).
- The Source is established (1979).
- CompuServe begins to offer online services to personal users (1979).
- Beginnings of floppy & file transfer-based services. (e.g., Commerce Business Daily listings).

1980s

- *Federal Communications Commission (FCC) issues initial Computer II decision in the Computer Inquiry proceeding (1980).*
- Combination of inexpensive desktop computers (PCs) and network ready servers allows corporations to join the Internet. Corporations begin to communicate with each other and their customers online.
- ARPANET fully converts to TCP/IP Standard (1983).
- FidoNet is created and quickly becomes a successful BBS service (1983).
- US companies begin to offer commercial email services (MCI Mail, Sprint's Telemail, Dialcom).
- First "Free-net" created at Case Western University for the Society for Public Access Computing.
- Library of Congress goes online as a telnet service.

- Internet addresses begin using top level domains (tlds) such as .com, .edu, .gov, and .uk (1985)
- PeaceNet offered to participants for the cost of the telephone connection plus a nominal fee to cover operating expenses (1985).
- AOL (as Quantum) launches BBS with a graphical user interface.
- Telenet is acquired by Sprint (1986).
- The WELL, an ISP is established (1986)
- Microsoft Windows is first released (1986)
- UUNet initiates service (1987)
- Internet Relay Chat (IRC) is born (1988).

Early 1990s

- By the end of the 1980s, systems like USENET, FidoNet, and BITNET were serving several thousands of users around the world.
- The ARPANet is decommissioned. The faster NSFNET takes its place as the Internet backbone.
- The ban on commercial traffic on the Internet backbone, NSFNET, is lifted.
- Gopher is created and released.
- First audio and video broadcasts take place over a portion of the Internet known as the "MBONE."
- Lynx is developed.
- Mosaic, the first graphical web browser is deployed.
- Netscape is formed.

1995

- The Internet is fully privatized.

B. The Internet Today

Now in 2002, the Internet touches nearly every aspect of daily life. This year it is estimated that there are more than half a billion Internet users worldwide, with some 200 million in the United States and Canada alone. Traffic on the World Wide Web continues to grow at a pace of 40 to 80 percent per year. A Pew Internet survey shows that more than 50 million Americans send at least one email message per day. The popular Google search engine currently indexes more than two billion web pages, and there likely are four times that number actually on the network. In support of all that

content and traffic, there are up to 4.3 billion hosts, over 120 million servers, and hundreds of thousands of individual networks.

The ISP market has blossomed along with the exploding use of the Internet. Despite the present-day financial difficulties in the dot com sector, more than 7,000 ISPs provide a whole host of services, applications, and content to tens of millions of American consumers. These ISPs range from the largest national providers (AOL, Earthlink, MSN) to the mid-size regional providers, to the smallest mom-and-pop operation. In support of the resulting traffic, at least forty Internet backbone networks criss-cross the country, carrying many trillions of bits per second.

And yet, despite this robust array of competitive choices residing at the core and at the edge of the “network of networks,” most consumers have no choice when it comes to the “last mile” connection to the Internet. For the 98 percent of consumers utilizing “dial-up” modems to connect to their favored ISP, the incumbent local exchange carrier and its ubiquitous network of copper loops essentially is the only game in town. Fortunately, to date that critical physical and virtual link between an ISP and its customer has not been subject to the unchecked whims of an unregulated monopoly. Over twenty years ago, by an act of sheer foresight, the FCC arrived at a policy decision that guaranteed every online service provider a fair opportunity to compete over the local telephone network.

ISPs AND EQUAL ACCESS TO LOCAL TELECOM PLATFORMS**A. The FCC Plays A Major Role**

The advent of the online world, and all it has provided to consumers, cannot be viewed as a mere happy accident of history. Beyond the incredible efforts of thousands of brilliant and energetic minds in this nascent marketplace, a key regulatory decision by the Federal Communications Commission, and its reiteration over twenty years, has had a considerable impact on the ability of consumers to even reach the growing torrent of online services.

1. The Basic/Enhanced Distinction

The FCC's Computer Inquiry proceeding began in the mid-1960s as a revolutionary attempt by the Commission to separate out those services which should continue to be regulated as common carriage offerings under Title II of the Communications Act, from those services which utilize communications inputs in a highly competitive, and unregulated, "value-added" services marketplace. In the now-seminal Computer II order, released in 1980, the Commission classified all services offered over a telecommunications network as either "basic" or "enhanced." Put simply, "basic transmission services are traditional common carrier communications services" provided by telephone companies, and "enhanced services are not."¹ More specifically, the Commission observed that basic service constitutes "the common carrier offering of transmission capacity for the movement of information," which involves providing a

¹ Computer II, Final Order, 77 FCC Rcd 384 (1980), at 430 (para. 119).

communications path “for the analog or digital transmission of voice, data, video, etc. information.”² All basic services are regulated by the FCC as common carriage.

In contrast, an enhanced service must meet one of three criteria: it must (1) employ computer processing applications that act on the format, content, protocol, or similar aspects of the subscriber’s transmitted information; (2) provide the subscriber additional, different, or restructured information; or (3) involve subscriber interaction with stored information. Early examples of enhanced services include audiotext, videotext, and email. In all cases, an enhanced service by definition is “offered over common carrier transmission facilities used in interstate communications;” in other words, a basic communications component underlies every enhanced service, so that an enhanced service essentially “rides” on a basic service. Because enhanced services are provided in a competitive marketplace, the FCC decided to leave them unregulated.

2. The “Equal Access” Doctrine

While the Computer Inquiry rules are remembered largely, if not solely, for the creation of these important definitional distinctions between regulated basic services and unregulated enhanced services, perhaps an even more critical decision followed. The FCC had recognized that because basic communications service constitutes “the building block” upon which enhanced services are offered, “enhanced services are dependent upon the common carrier offering of basic services...”³ The FCC expressed concern that AT&T would have the motive and opportunity to provide unregulated enhanced services

² Id. at para. 93.

³ 77 FCC Rcd at 475 (para. 231).

in a way that used its own underlying communications facilities and services in a discriminatory and anticompetitive manner.

In order to protect against the potential for carriers to discriminate and commit anticompetitive acts against other ESPs, the Commission required such carriers to unbundle and provide the underlying basic transmission services to all ESPs on a nondiscriminatory basis. The thrust of this “equal access” requirement, the Commission explained, is “to establish a structure under which common carrier transmission facilities are offered by them to all providers of enhanced services (including their own enhanced subsidiary) on an equal basis.” This means that “the same transmission facilities or capacity provided the subsidiary by the parent, must be made available to all enhanced service providers under the same terms and conditions.” This requirement “provides a structural constraint on the potential for abuse of the parent’s market power through controlling access to and use of the underlying transmission facilities in a discriminatory and anticompetitive manner.”⁴

The three-part definition of “enhanced services,” and the nondiscriminatory unbundling and other requirements applicable to carriers were codified in section 64.702 of the FCC’s rules.⁵ Those rules authorized all common carriers, excepting AT&T and GTE, to provide enhanced services directly to the public. AT&T and GTE were prohibited from providing such services unless they complied with specific requirements, including establishing separate corporations providing enhanced services, which must (1) obtain all transmission facilities pursuant to tariff, (2) operate independently from the

⁴ *Id.* at 474 (para. 229).

⁵ 47 C.F.R. Section 64.702 (2001).

carrier, (3) deal with affiliated entities on an arm's length basis, and (4) reduce to writing all material transactions between the carrier and the affiliate. In addition, carriers were required (1) not to sell or promote directly any enhanced services, (2) to disclose publicly all network design and technical standards information affecting changes to the underlying telecommunications network, and (3) not to provide customer proprietary information to the separate corporation.⁶

3. An Unwavering Principle

Over the past twenty years, the fundamental nondiscriminatory unbundling requirement has been retained through the various Computer Inquiry proceedings. The FCC did clarify in subsequent orders that all nondominant carriers were required to make available underlying transmission capacity on nondiscriminatory terms, while dominant carriers operating under the Computer II structural separation rules (the Bell Operating Companies (BOCs) and AT&T) were prohibited from offering basic and enhanced services together at a single bundled price.⁷ So, even while the Commission replaced the BOCs' structural separation requirements with nonstructural safeguards, it affirmed and strengthened the requirement that the BOCs must acquire transmission capacity for their own enhanced services operations under the same tariffed terms and conditions as competitive ESPs.⁸

⁶ See 47 C.F.R. Section 64.702(b), (c).

⁷ Under the more flexible Computer III rules, the BOCs were allowed to jointly market enhanced services and telecommunications services, but they remained obligated to offer the telecommunications service component separately through the Comparably Efficient Interconnection (CEI) and Open Network Architecture (ONA) requirements.

⁸ CPE/Enhanced Services Bundling Order (2001), at para. 4.

More recently, following passage of the Telecommunications Act of 1996, the FCC found that the preexisting Computer Inquiry requirements are consistent with the statute, and continue to govern BOC provision of information services.⁹ The Commission explained that the Computer Inquiry-based rules are “the only regulatory means by which certain independent ISPs are guaranteed nondiscriminatory access to BOC local exchange services used in the provision of intraLATA information services.”¹⁰ Continued enforcement of these safeguards is necessary, the Commission concluded, and “establishes important protections for small ISPs that are not provided elsewhere in the Act.”¹¹ In particular, where a BOC affiliate provides an information service bundled with its own facilities-based telecommunications services, “the affiliate would be subject to a Computer II obligation to unbundle and tariff the underlying telecommunications services used to furnish any bundled service offering.”¹²

Within the last year, the FCC has emphasized the continued retention the “fundamental provisions” contained in the Computer Inquiry decisions “that facilities-based carriers continue to offer the underlying transmission service on nondiscriminatory terms, and that competitive enhanced services providers should therefore continue to have access to this critical input.”¹³ Indeed, the Commission noted that it sought “to ensure that competitive enhanced service providers continue to have non-discriminatory

⁹ Non-Accounting Safeguards Order, 11 FCC Rcd 21905 (1996), at para. 132, remanded on other grounds.

¹⁰ Id. at para. 134.

¹¹ Id.

¹² Id. at para. 136.

¹³ Id. at para. 12.

access to the underlying transmission capacity....”¹⁴ In particular, the Commission stressed, “the separate availability of the transmission service is fundamental to ensuring that dominant carriers cannot discriminate against customers who do not purchase all the components of a bundle from the carriers, themselves.”¹⁵ In addition, the Commission observed that not even the BOCs themselves disputed that “all incumbent LECs are required to offer basic local exchange service on an unbundled, tariffed, nondiscriminatory basis.”¹⁶

Thus, the FCC repeatedly and forcefully has acknowledged the “fundamental provisions” of the Computer Inquiry decisions that protect an ESP’s ability to access a “critical input.” Under the current FCC rules, BOCs that provide information services are required to offer the underlying telecommunications transmission component separately pursuant to tariff, and their own information service offerings must utilize such telecommunications services in the same nondiscriminatory manner. All other carriers owning transmission capacity and providing enhanced services must unbundle their basic from enhanced services and offer the telecommunications services to other enhanced service providers under the same terms and conditions under which they provide such services to their own enhanced service operations.

It must be stressed that equal, nondiscriminatory access does not constitute anything like a “free ride” on the ILECs’ networks, as some have alleged. For over twenty years, ISPs have paid above-cost retail rates to the ILECs for the use of their local network. All ISPs have sought is to ensure that the rates they pay, and the services they

¹⁴ Id. at para. 39.

¹⁵ Id. at para. 44.

¹⁶ Id.

receive, are not any different than that obtained by any other ISP – and in particular the ILECs’ own ISPs. Unless an ILEC violates the Communications Act by failing to assess any telecommunications-related charges on its own ISP, an equitable ride is not a free one.

B. Online Services Before the Internet

Against the backdrop of the Computer Inquiry regulatory structure that has been in place since 1980, it is instructive to briefly review the initiation, growth, and ultimate widespread success of a robust and feature-rich information services marketplace. One can reasonably conclude that much of the success, if not the existence, of this market has its very roots in the FCC’s far-reaching Computer Inquiry precedent.

Many service providers were in existence and flourishing long before the Internet was made available for commercial pursuits. These early providers utilized the local telecommunications networks to reach and interact with their customers – just as ISPs do today. The types of pre-Internet online services and service providers are listed briefly below.

1. Early Types of Services

- **Remote Access Data Processing Services (Time Share Services)**

Time Share services allow users to dial into more advanced data processors (data processors were scarce and expensive at the time). Time Share services relied on regulated telephone services for transport. Time Sharing Services can be traced back to the late 60s.

- **Audiotext Services**

These include services such as interactive phone menus and voice mail.

- **Videotext Services/Online Interactive Data Services**

These services send information (news, stock quotes, etc.) from computer databases over telephone lines to subscribers' terminals, personal computers, or teleprinters. Government-owned telephone companies developed the first videotext systems in Europe in the 1970s. Videotext systems delivered information and transactional services such as banking and shopping. These systems differed from broadcast media delivery systems due to the special qualities of interactivity engendered by the technology which allowed the user to personalize his media use rather than act as a passive member of an aggregate audience.

Services provided by videotext fall into one of three areas: (1) information retrieval services such as obtaining stock prices or weather forecasts; (2) transactional message services which enable the purchasing of merchandise over the network; and (3) interpersonal message exchanges which may include conferencing, chat channels, or electronic mail.

Although users connected to early videotext systems on dedicated terminals, most online services were soon accessed by the user via a phone line and a personal computer equipped with a modem or Ethernet connection. Videotext users typically paid a per-use charge or a monthly subscription fee to access the service.

In the United States, videotext systems were initially launched by the newspaper publishers who provided news and advertisements through special terminals hooked up to television monitors. Although most of these services met with little commercial success, the increased diffusion of personal computers into the home eventually enabled consumer oriented videotext systems to succeed in the mass marketplace. By the mid-1990s, more than four million households had subscribed to one or more of the largest consumer-oriented U.S. videotext systems: America-Online, Prodigy, CompuServe, and Genie.

▪ **Bulletin Board Systems**

In the late seventies, computer users began to create small information systems that could be accessed over the phone lines. These "bulletin board systems" consisted of a single computer that was always waiting to answer the phone. When it rang, the computer would answer the phone and establish two-way communication via the modem. A program running on this computer would then allow the calling computer to do various things, such as reading messages left by other users, or posting messages for others to read. As the BBSs became more sophisticated, it was possible to send and receive programs or other data files via modem, play games, or participate in online surveys. The bulletin board operator was responsible for maintaining the software and the message databases, often leaving his computer on for 24 hours a day to be available for callers.

- **Airplane Reservation Services**

In the early 1960s, American Airlines and IBM created the SABRE online reservation system. An international system soon was built, and in 1965 the Societe Internationale de Telecommunications Aeronautiques (SITA), decided to build a new packet-switching network that would use leased telephone lines to connect nine switching centers in Amsterdam, Brussels, Frankfurt, Hong Kong, London, Madrid, New York, Paris, and Rome.

- **Online Database Searching (Libraries, Business, News)**

Examples of these services included Lexis, Dow Jones News/Retrieval Service, Dialog, News Corp.'s Delphi, Dial Data, BIX, and Microsoft Network.

- **Electronic Data Interexchange (EDI)**

EDI involved the electronic exchange of trade-related documents.

- **Point of Sale (POS) transactions**

POS transactions facilitated credit card purchases by connecting swipe machines connected to large databases over the phone lines.

- **Electronic Mail**

E-mail began as a service provided only between users on a particular network (i.e., CompuServe users could send messages to other CompuServe users). It then expanded to include Internet mail. MCI Mail was one of the first commercial services offered.

- **Usenet News Groups**

Usenet began at Duke University and was a system for distributing online forums, called "newsgroups," among computers running the UNIX operating system.

- **Internet Protocols**

Early Internet-like protocols developed before the World Wide Web and graphical browsers include: Telnet, File Transfer (FTP), Gopher, WAIS, Internet Relay Chat (IRC), and Multi-User Dungeon (MUD).

2. Early Providers

▪ Tymnet and Telenet

As a precursor to interactive online services, Time Share services provided remote access to data processing services using a modem and the phone network. Early providers of Time Sharing services included Tymnet & Telenet. The companies' nodes acted as computer gateways to other online computer services across the country. Users paid a fee for using the Tymnet or node, and an additional fee for the specific service they accessed. Telenet later became SprintNet. By the mid-1970s, a number of commercial entities began to see the potential of providing data communications services independently of time-sharing services.

▪ The Source

The Source began in 1979 and lasted until 1989. For much of its life, it was owned by Reader's Digest. It was accessible through Telenet or Tymnet nodes. The Source had many services available online, including over twenty financial and business services, access to several national and international news services, and computer-specific news features. An online encyclopedia, shopping, interactive games, and airline reservations were also available. Access to the Source required a \$10 monthly minimum charge, long after other national online services had either eliminated or significantly lowered such charges. CompuServe bought out the Source, and its subscribers merged with that service in 1989.

▪ CompuServe

CompuServe is the longest continually operating ISP in the online services business. Founded in 1969 as a computer time-sharing service, CompuServe drove the initial emergence of the online service industry. In 1979, CompuServe became the first service to offer electronic mail capabilities and technical support to personal computer users. CompuServe broke new ground in 1980 as the first online service to offer real-time chat with its CB Simulator. By 1982, the company had formed its Network Services Division to provide wide-area networking capabilities to corporate clients. Early CompuServe services included a Hollywood Hotline and an Airline Reservation Service cosponsored by several airlines.

▪ Prodigy

Prodigy was founded in 1984, as the first consumer online service (ISP). Prodigy was also the first consumer online service to offer World Wide Web access, and the first to offer its members the ability to publish personal World Wide Web pages.

▪ AOL

Founded in 1985, AOL initially offered limited online services for what was then a miniscule market of personal-computer users. A timeline of highlights from AOL's beginning years includes:

May 1985:	Date of incorporation under original founding name, Quantum Computer Services
Nov. 1985:	Quantum's first online service, "Q-Link," launched on Commodore Business Machines
Aug. 1988:	Quantum's "PC-Link" launched through joint venture with Tandy Corporation
Oct. 1989:	AOL service launched for Macintosh and Apple II
June 1990:	Quantum's "Promenade" service launched for IBM PS/1
Feb. 1991:	DOS version of AOL launched
Oct. 1991:	Quantum Computer Services changes its name to America Online, Inc.

▪ **Genie**

Genie, owned and operated by General Electric, began in 1985. Like other consumer-oriented online providers, Genie offered many different services to its subscribers -- including news, an online encyclopedia, online shopping, games, financial information, and areas of interest to users of various brands of computers.

▪ **AT&T**

An early skeptic of packet-switching, AT&T did eventually join the online commercial service business, with AT&T Infomaster.

C. And Now, the Internet – Brought to You by 7,000 ISPs

The entrepreneurial vision and innovations that created the early online services market, and later enabled the commercial Internet and World Wide Web, succeeded in large part because the telecommunications services on which the Internet applications ride were made transparent by federal regulation. In particular, in the wake of adoption of the FCC's Computer Inquiry rules (see Section A above), the ILECs were not allowed to constrain who provided Internet services, or how they were provided. As a result, tremendous innovation and investment took place at the edge of the network, free from both government and monopoly control.